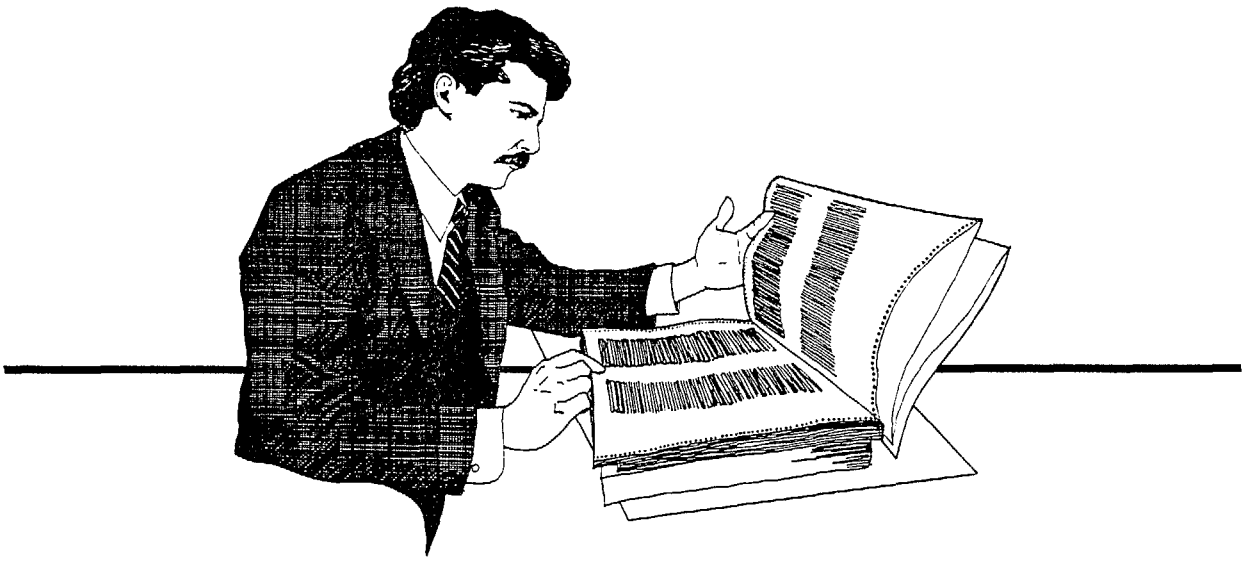
DEVELOPMENT COSTS AND SCHEDULING



Chapter Eight
DEVELOPMENT COSTS AND SCHEDULING

The analyses conducted in previous chapters have evaluated airport development needs based on forecast activity levels, environmental and engineering factors, and operational efficiency. In addition, one of the most important elements of the master planning process is the application of basic economic, financial, and management rationale so that the feasibility of the proposed Benson Municipal Airport can be assured. In short, this chapter will concentrate on those factors which will help make the development of Benson Municipal Airport achievable and successful.

This section of the Master Plan will become the primary reference for decision makers responsible for carrying out the Master Plan recommendations, consequently, this chapter must provide full justification for each recommendation. Proper understanding of the potential consequences of a decision either for or against a recommendation will be essential. This understanding will be critical in maintaining a realistic and cost effective program that provides maximum benefit to the community.

The program outlined on the following pages has been evaluated from a variety of perspectives. The plan is not dependent exclusively upon the City of Benson for financing the recommended airport development. In fact, with proper and timely decision making, it may be possible for the City to provide nearly $11.5 million in improvements for approximately 15 cents on the dollar. This can be accomplished by utilizing taxes paid by aviation consumers for the development of the national air transportation system.

Several sources for development funding exist which provide decision makers the means necessary for implementing the proposed development program. In fact, the

development program is heavily dependent upon other sources of capital for financing improvements.

Nevertheless, the City of Benson will have to provide a share of the development costs. This financial commitment on the part of the City could result in significant economic benefit to the area.

The primary source of funds for airport development are the taxes paid by the aviation consumer throughout the country. The process of collecting and distributing aviation user taxes is quite complex but generally follows one basic premise. Aviation goods and services are provided for a fee and taxed at various rates. These taxes are deposited in the Aviation Trust Fund which currently has a $7.2 billion surplus.

Distribution of the taxes deposited in the Aviation Trust Fund is controlled by the Congress and administered by the FAA. The Congress establishes the funding authorization levels and the FAA establishes priorities for distributing the funds appropriated through the budget process.

The Airport Improvement Program (AIP) was originally established by Congress in 1982. The program was amended in 1983 and again in 1987 to provide for the continued development of the nation's airports. Monies appropriated from the Aviation Trust Fund through the AIP can provide up to 90 percent of the financing necessary for eligible airport development projects. These monies are distributed to eligible airport sponsors through grants administered by the FAA.

The current Airport Improvement Program is scheduled to continue through 1992. One basic underlying assumption in this chapter is that the AIP or other similar program will continue to support airport development requirements throughout the planning period.

The primary feature of the AIP funding which must be recognized and properly considered is that these funds are distributed on a priority basis. These priorities are established by each FAA Regional Office based upon the number and dollar amount of applications received. Under this process, the City of Benson will be competing with other airport sponsors in the Western-Pacific Region for development grants.

In order to compete for these funds, the approved development program for Benson Municipal Airport must be continuously coordinated with the FAA. Airport development grants obtained by the City must always be matched by local funds. Since the Airport Improvement Program uses a 90-10 matching formula for airports like the proposed Benson Municipal Airport, federal grants are valuable to airport development programs. It is important to act expeditiously in securing the ten percent local share for these AIP grants or to have the local share already budgeted for the year in which the grant is expected.

In support of the State Aviation System Plan, the State of Arizona also participates in the development of general aviation airports through its Department of Transportation/ Aeronautics Division (ADOT). Presently the state may grant up to 50 percent of the local share of AIP eligible projects, and 90 percent of the total project costs on some projects not eligible for AIP grants. Currently the state has set a maximum grant amount of $423,000 to any eligible airport in fiscal year 1990. As with the federal participation, a similar level of coordination of program needs should be maintained with ADOT Aeronautics. Other potential funding sources are also presented in the various schedules for the individual development projects detailed later in this chapter.

In addition to the local share on federally or State funded improvements, the City will be faced with financing necessary facilities that are not eligible for AIP or ADOT grants. The direct financing necessary for these projects will be high, and the natural tendency will be to reduce or eliminate basic facilities such as utilities, terminal building and auto parking from the plans. Again, aviation users are expected to pay at the local level to support these facilities through airport leases, aircraft parking fees, and fuel flowage fees.

The final source for development capital is the private sector. Private development is frequently ignored and often does not receive adequate credit for its investment at airports. This Master Plan has identified many areas where private development sources can contribute needed improvements. These improvements can not only benefit private business concerns but will also benefit the airport and the community.

The community's interest in a public airport is generally to serve the aviation demands of the region and promote the economic well-being of the community. As such, the principal beneficiaries are local business and industry. Because of the importance of many of the improvements to local business, and subsequently the community as a whole, the public and private sector must work together to ensure that adequate resources are provided and long term airport development financing is available.

AIRPORT DEVELOPMENT SCHEDULE AND COST SUMMARIES

The initial step in establishing an airport development schedule is to determine the cost of each proposed improvement. Cost data used in this study were collected from a variety of sources, including published engineering indices, government agencies and similar airport construction projects. The estimates for each planning period are based on constant 1990 dollars. A 25 percent contingency for overhead, engineering, administration and unforseen circumstances has been applied to the cost estimates of various development projects. This contingency factor will ensure that adequate funds will be available for each project and in most cases excess funds can be carried over to the next project.

In future years, as the Master Plan is implemented, the current cost estimates can continue to serve as management aids by adjusting the 1990-based figures for subsequent inflation. This may be accomplished by converting the interim change in the National Consumer Price Index (CPI) into a multiplier ratio through the following formula:

$$\frac{X}{CPI} = Y$$

Where: X = CPI in any given future year
CPI = National CPI in 1990 (1982-84 = 100)
Y = Change Ratio (multiplier)

Multiplying the change ratio (Y) times any 1990 based cost estimate presented in this study will yield the adjusted dollar amounts appropriate in any future year reevaluation. National CPI data should be used, as local or regional measures may be related to unique local factors unrelated to airport construction, or may not be available. The CPI information is available from the economic research departments of most commercial banks or the Arizona Department of Commerce.

AIRPORT DEVELOPMENT STAGES

An airport development schedule takes into consideration not only the demand for facilities but also the financial capability of the airport sponsor. Development project

scheduling has been divided into three major stages, covering the entire planning period. The three planning stages are intended to provide an evolution in airport facilities and reflects the relative importance of the development projects to aviation safety and airport efficiency.

The first five year stage includes those items necessary to the establishment of a safe general aviation airport capable of expanding to accommodate future growth. The second five year stage includes those items necessary to tie related development items together and maintain or improve the capability of Benson Municipal Airport. The third long-term phase covering the remaining ten years should include those items necessary to improve efficiency and the overall operational effectiveness of the airport.

As shown in **Table 8A** below, the total cost for completing all three stages of development at Benson Municipal Airport will be approximately $11.5 million by the year 2010.

Table 8A
Summary of Total Costs
Benson Municipal Airport

Stage I	(1991-1995)	$4,657,800
Stage II	(1996-2000)	$2,664,900
Stage III	(2001-2010)	$4,132,300
Total Development Costs		$11,455,000

Prior to scheduling individual projects and costs, two key points should be emphasized. First, the financial resources of the City will not allow extensive airport development during the initial stage, therefore, development will be programed to provide essential facilities that can be expanded later. Second, to the maximum extent possible, the staging of development projects has been geared to the projected activity at the airport rather than scheduled by time period.

It must be remembered that actual activity or demand may vary from forecast levels. With the exception of those items directly related to safety, the development staging in this section should also be viewed as a projection. In the event airport activity does not follow projected levels, implementation of projects should be altered to coincide with demand rather than according to the estimated schedule. In addition, due to the conceptual nature of a master plan, implementation of recommended capital projects should occur only after further refinement of their design considerations and cost estimates through detailed engineering analyses at the project level.

Stage I development will cover the five year period from 1991 through 1995. During this stage, it will be important to provide essential facilities while keeping development costs to a minimum. Stage I will focus on providing those facilities that are necessary for safety and required for a minimum level of aviation service.

Stage I development will concentrate on the land acquisition necessary for the initial development of Runway 10-28 and construction of the first 4,000 feet of runway. Airport access and utilities will also be necessary in Stage I.

The major development projects in Stage I include acquisition and site preparation of approximately 205 acres of land for runway construction and terminal development. A 3.5 mile airport access road will be constructed from Ocotillo Road to the airport site. Water, sewer, and electric services will be established, and security fencing will be installed. Other facility improvements will include aircraft parking apron, auto parking, and airfield marking and lighting. This

development will form the foundation for future development and provide a safe and functional airport.

Stage II development is projected for the five year period from 1996 through 2000. Development in this stage will focus primarily on expanding the operational capabilities of the airport, and expanding general aviation facilities and services. This stage will begin to establish terminal building facilities and commercial services at the airport.

The major development projects in Stage II include extension of Runway 10-28 to the east 1,600 feet and construction of a 5,600 foot parallel taxiway. This runway extension will require the acquisition of approximately 37 acres of land on the east end of the airport. Also included in this stage are the development of fuel storage and aircraft hangar facilities. Additional airport lighting and navigational aids will also be installed.

The extension of Runway 10-28 will enable Benson Municipal Airport to safely and adequately accommodate the full range of small general aviation aircraft currently being used throughout the country.

Stage III (2001-2010) projects will focus on improving the long term capabilities of the airport. The airport will ultimately be developed to accommodate aircraft weighing up to 60,000 pounds. Continued growth in demand for landside facilities and services, and increased operational activity will require the major development items which highlight this stage. At the completion of Stage III, Benson Municipal Airport will be completely capable of accommodating the aviation activity anticipated during the planning period for the widest range of operating conditions.

The major development projects in Stage III would include acquisition of approximately 145 acres to enable the airport to extend Runway 10-28 and to upgrade the airport design standards to accommodate large aircraft. Runway 10-28 will be extended 1,400 feet to its ultimate length of 7,000 feet. The runway will be widened to 100 feet and the runway, taxiway and portions of the aircraft parking apron will be strengthened for the larger aircraft. Additional airfield lighting and approach aids will be installed, and an instrument approach procedure will be established for the airport.

The development program has been designed to keep the initial local share of the development costs within reasonable and practical limits. However, if the local share of the development costs become prohibitive during either of the first two stages, shifting the financial burden to a subsequent stage is certainly an option to be considered. **Table 8B** illustrates the proposed development schedule and project cost summary for the development of Benson Municipal Airport. It should be noted that these costs were developed based on available information. Following more detailed engineering studies and design, these estimates will need to be refined. The recommended hydrology study would provide important information on the size of the drainage basin and the quanities of storm water flows through this area. Until this has been completed, estimates affected by drainage & stormwater, must be considered very preliminary.

Table 8B
Estimated Development Schedule and Costs Summary
Benson Municipal Airport

Stage I 1991-1995	Quanitity	Development Cost
1. Environmental Assessment		$30,000
2. Hydrology Study		20,000
3. Land Acquisition	205 AC	287,000
4. Construct Access Road (FAA)	16,000 SY	240,000
5. Construct Access Road (Local)	40,000 SY	600,000
6. Site Preparation	205 AC	2,050,000
7. Drainage Improvements	4	200,000
8. Security Fencing	1,580 LF	15,800
9. Install Utilities		500,000
10. Construct Runway 10-28	33,333 SY	500,000
11. Construct Aircraft Parking Apron	4,000 SY	60,000
12. Construct Segmented Circle	1	5,000
13. Construct Auto Parking	1,000 SY	15,000
14. Install Lighted Wind Indicator	1	5,000
15. Install MIRL Runway 10-28	4,000 LF	120,000
16. Install Rotating Beacon	1	10,000
Stage I Subtotal		**$4,657,800**

Stage II 1996-2000		
1. Land Acquisition	37 AC	$51,800
2. Site Preparation	37 AC	370,000
3. Extend Security Fencing	3,200 LF	32,000
4. Extend Runway 10-28	13,333 SY	200,000
5. Extend MIRL	1,600 LF	48,000
6. Install PAPI-2 Runway 28	1	10,000
7. Construct Parallel Taxiway	26,444 SY	396,700
8. Install Taxiway Delineators	70	1,400
9. Install NDB	1	20,000
10. Install AWOS	1	60,000
11. Pave Access Road (Local)	40,000 SY	400,000
12. Pave Access Road (FAA)	16,000 SY	160,000
13. Construct Fuel Storage		100,000
14. Construct Terminal Building	1,650 SF	165,000
15. Construct 10-Unit T-Hangar	10	150,000
16. Construct FBO Building/Hangar		500,000
Stage II Subtotal		**$2,664,900**

Stage III 2001-2010

1.	Environmental Assessment		35,000
2.	Land Acquisition	145 AC	203,000
3.	Site Preparation	145 AC	1,450,000
4.	Extend Security Fencing	2,800 LF	28,000
5.	Extend Runway 10-28	11,667 SY	175,000
6.	Extend Parallel Taxiway	6,611 SY	100,000
7.	Widen Runway 10-28	19,444 SY	290,000
8.	Strengthen Runway 10-28	77,778 SY	777,800
9.	Extend MIRL	1,400 LF	42,000
10.	Install MITL on Parallel Taxiway	8,500 LF	255,000
11.	Install PAPI-2 Runway 10		10,000
12.	Strengthen Parallel Taxiway	33,056 SY	330,500
13.	Expand Aircraft Parking Apron	15,000 SY	150,000
14.	Expand Terminal Building	1,350 SF	135,000
15.	Expand Auto Parking	1,800 SY	27,000
16.	Strengthen Aircraft Parking Apron	5,600 SY	84,000
17.	Install REILS Runway 10	1	15,000
18.	Install REILS Runway 28	1	15,000
19.	Non-Precision Runway Markings		10,000

Stage III Subtotal **$4,132,300**

Total Development Costs **$11,455,000**

AC = Acres, SY = Square Yards, LF = Linear Feet

While the total estimated costs of the ultimate development at Benson as proposed would exceed $11 million, it should be remembered that a large percentage of these improvements can be provided at minimal direct cost to the City.

FINANCING THE LOCAL SHARE OF AIRPORT CAPITAL IMPROVEMENTS

In addition to the revenues derived from airport operations, the City has several methods available for financing the local share of airport development costs. The most common methods involve debt financing which amortize the debt over the useful life of the project or a specified period. Methods of debt financing commonly available to the City, as well as the alternative of third party support, are discussed below.

GENERAL OBLIGATION BONDS

General Obligation (GO) bonds are a common form of municipal bonds whose payment is secured by the full faith, credit, and taxing authority of the issuing agency. GO bonds are instruments of credit and, because of the community guarantee, reduce the available debt level of the sponsoring

community. This type of bond uses tax revenues to retire debt and the key element becomes the approval of the electorate to a tax levy to support airport development. If approved, GO bonds are typically issued at a lower interest rate than other types of bonds.

SELF LIQUIDATING GENERAL OBLIGATION BONDS

As with all GO bonds, *Self Liquidating* Bonds are secured by the issuing government agency. They are retired, however, by the adequate cash flow from the operations of the facility. If the state court determines that the project is self-sustaining, the debt may be legally excluded from the community's debt limit. Since the credit of the local government bears the ultimate risk of default, the bond issue is still considered, for the purpose of financial analysis, as part of the debt burden of the community. Therefore, this method of financing may mean a higher rate of interest on all bonds sold by the community. The amount of increase in the interest rate depends, in part, upon the degree of exposure risk of the bond. Exposure risk occurs when there is sufficient net airport operating income to cover the level of debt service plus coverage requirements, thus forcing the community to absorb the residual.

REVENUE BONDS

Revenue Bonds are retired solely from the revenue of a particular project or from the operating income of the issuing agency, such as the City of Benson. Generally, they fall outside statutory limitations on public indebtedness and, in many cases, do not require voter approval. Because of the limitations on other public bonds, airport sponsors are increasingly turning to revenue bonds whenever possible.

However, Revenue Bonds normally carry a higher rate of interest because they lack the security of tax supported GO bonds issued by government bodies. It should also be noted that the general public would usually be aware of the risk involved with a revenue bond issue for a general aviation airport. Thus, the sale of Revenue Bonds in this case could be more difficult than those for established air carrier airports.

Revenue Bonds are more suited to larger general aviation airports that have sufficient cash flow and income to retire the debt in a reasonable time period. Although Revenue Bonds are a possibility, it is doubtful that this method would be a feasible option for financing the development of Benson Municipal Airport.

COMBINED REVENUE/GENERAL OBLIGATION BONDS

These bonds, also known as *Double-Barrel* Bonds, are secured by a pledge of back-up tax revenues to cover principal and interest payments in cases where airport revenues are insufficient. The combined Revenue/-Obligation bond interest rates are usually lower then Revenues Bond rates due to their back-up tax provisions.

BANK FINANCING

Some airport sponsors have successfully used bank financing as a means of providing airport development capital. Generally, two conditions are required: the airport must demonstrate the ability to repay the loan at current market rates, and the capital improvement must be less than the value of the present facility. These are standard conditions which are applied to almost all bank loan transactions. This method of financing is particularly useful for smaller development items that will produce revenues and a positive cash flow, and where no private financing is available.

THIRD-PARTY SUPPORT

Several types of funding fall into this category. For example, individuals or interested organizations may contribute portions of the required development funds. Private donations are not a common means of airport financing, however, if obtained, the private financial contributions not only increase the financial support of the project, but also stimulate moral support to airport development.

A slightly more orthodox method of thirdparty support involves permitting the Fixed Base Operator (FBO) to construct their own hangar and maintenance facilities on property leased from the airport. The advantage to the airport in this type of an arrangement is that it lowers the local share of development costs, a large portion of which is building construction. The advantage to the FBO is that the development may qualify for investment tax credit and would be allowed depreciation on the facilities. However, the disadvantage is that the City will receive a smaller percentage of the revenue generated at the airport. For this reason, it is important to consider all eventualities before entering into a specific lease agreement.

SUMMARY

Funding for the development of Benson Municipal Airport over the next twenty years will need to be obtained from several sources. Federal airport development grants would be the primary source of funds and will be instrumental in developing the airport and carrying out the master plan. State financial aid has also been utilized in a supplementary role to reduce the local share of the development costs. Private sources have also been programed to provide FBO facilities and services, thereby reducing the local financial requirements.

Table 8C illustrates the optimum funding scenario from all potential sources. The figures in the table reflect maximum federal assistance on eligible development projects and maximum private participation on ineligible projects. However, the private funding has been restricted to those facilities needed for producing income. If federal assistance is not available at the time of the project, the City may ask the State to participate at 90 percent (up to their limit) even though the proposed funding schedule does not indicate that rate of participation from the State.

Table 8C
Development Funding Sources
Benson Municipal Airport

Stage I	Federal	State	City	Private	Total
Stage I	$3,681,372	$194,214	$782,214	$0	$4,657,800
Stage II	1,229,222	60,339	625,339	750,000	2,664,900
Stage III	3,639,940	178,680	313,680	0	4,132,300
TOTAL	**$8,550,534**	**$433,233**	**$1,721,233**	**$750,000**	**$11,455,000**

The economic benefits and the contribution of the airport toward the overall goals and objectives of the region must also impact local funding decisions. It will be extremely important for the community to express their support for the needs of the airport. The ability to develop at least partial financial support from the private sector will reduce the level of direct funding even further. The fact that the City of Benson can develop more than $11.4 million of airport improvements with an investment of less than $1.8 million cannot be taken lightly.

The City of Benson will need to keep fully abreast of all the potential funding sources and research each source on a continuing basis. A large portion of the development program must be completed in sequence to avoid unnecessary relocation of facilities. The final portions of this chapter deal with this through a process called *Continuous Planning.* By closely monitoring the aviation activity and availability of funds with the worksheets provided on the following pages, airport management will be able to carry out the implementation of the Benson Municipal Airport Master Plan.

CONTINUOUS PLANNING PROCESS

The successful development of the Benson Municipal Airport will require sound judgment by City management. Among the more important factors influencing development decisions are scheduling or sequencing, and airport activity. Both of these factors can be used as references in plan implementation.

While it was necessary for scheduling and budgeting purposes to focus on the timing of airport development, the actual need for facilities should in fact be established by actual levels of aviation activity. Proper master plan implementation suggests the use of airport activity, rather than the previously estimated time frames, as the primary criterion in airport development. The development, however, must also follow a logical progression so that it does not create intermediate conflicts in the process.

Experience has indicated that major problems have materialized from strict adherence to schedules rather than demands. These problems center around the inherent inflexibility and inability of this policy to deal with new issues that develop from unforeseen events that may occur after the plan is completed. The format used in the development of this master plan has attempted to deal with this issue. This section is titled Continuous Planning for several reasons. The first is to emphasize that planning is a continuous process that does not end with the completion of the master plan. The second is to recognize this without invalidating the planning priorities or the sequence of development within the Master Plan.

The primary issues and concepts upon which the Benson Municipal Airport development program is based, should remain current for many years to come. The real value of a usable master plan, however, is that it serves to keep the issues and objectives of airport development in the mind of the user. Consequently, the user is better able to recognize changes and their potential effects on the airport.

Guidelines and worksheets are included in the following section for each future year during the initial stage of development from 1991 through 1995. Summary worksheets are also included for Stage II and Stage III. All estimated development costs are based upon 1990 dollars, therefore, costs must be adjusted by the appropriate inflation rate factor in effect at the particular time of development.

STAGE I
1991 Airport Development Costs

RECOMMENDED DEVELOPMENT	ESTIMATED COST
1. Environmental Assessment	$30,000
2. Hydrology Study	20,000
Total	**$50,000**

Inflation Adjustment: _____% x $50,000 = $_____

Plus or Minus Other Proposed Development:

1. _____ $_____
2. _____ $_____
3. _____ $_____
4. _____ $_____
5. _____ $_____

Total Cost of 1991 Proposed Development: $_____

Since the FAA Fiscal Year is from October through September, efforts should begin immediately to identify the development that will be eligible for federal or other funding during this period. The airport should have applications submitted early for the maximum funding possible in case additional funds become available. For the same reason, the application should include all the development proposed through the planning year. Although it is unlikely it will all be funded in one year, the FAA will be in a position to immediately identify the areas where additional funds can be spent. The following listing illustrates optimum funding for the recommended development during this period.

STAGE I (Continued)
1991 Development Funding

DEVELOPMENT ITEM	FAA	STATE	CITY	PRIVATE	TOTAL
1. Environmental Assessment	$27,318	$1,341	$1,341	$0	$30,000
2. Hydrology Study	18,212	894	894	0	20,000
Total	**$45,530**	**$2,235**	**$2,235**	**$0**	**$50,000**

Adjustments:

1._____	$____	$_____	$____	$_____	$_____
2._____	$____	$_____	$____	$_____	$_____
3._____	$____	$_____	$____	$_____	$_____
4._____	$____	$_____	$____	$_____	$_____
5._____	$____	$_____	$____	$_____	$_____

1991 SUMMARY

1991 will complete the necessary additional planning and site investigation for FAA site approval. The Environmental Assessment when approved will result in the FAA issuing a Finding of No Significant Impact (FONSI). The Hydrology Study will determine the extent of flood protection necessary and the drainage improvements that will be required.

STAGE I
1992 Airport Development Costs

RECOMMENDED DEVELOPMENT	ESTIMATED COST
3. Land Acquisition	$287,000
4. Construct Access Road (FAA)	240,000
5. Construct Access Road (Local)	600,000
Total	**$1,127,000**

Inflation Adjustment: _____% x $1,127,000 = $_____

Plus or Minus Other Proposed Development:

1. _____ $_____
2. _____ $_____
3. _____ $_____
4. _____ $_____
5. _____ $_____

Total Cost of 1992 Proposed Development: $_____

Since the FAA Fiscal Year is from October through September, efforts should begin immediately to identify the development that will be eligible for federal or other funding during this period. The airport should have applications submitted early for the maximum funding possible in case additional funds become available. For the same reason, the application should include all the development proposed through the planning year. Although it is unlikely it will all be funded in one year, the FAA will be in a position to immediately identify the areas where additional funds can be spent. The following listing illustrates optimum funding for the recommended development during this period.

STAGE I (Continued)
1992 Development Funding

DEVELOPMENT ITEM	FAA	STATE	CITY	PRIVATE	TOTAL
3. Land Acquisition	$261,342	$12,829	$12,829	$0	$287,000
4. Construct Access Road (FAA)	218,544	10,728	10,728	0	240,000
5. Construct Access Road (Local)	0	0	600,000	0	600,000
Total	**$479,886**	**$522,557**	**$623,577**	**$0**	**$1,127,000**

Adjustments:

1._____	$____	$____	$____	$_____	$____
2._____	$____	$____	$____	$_____	$____
3._____	$____	$____	$____	$_____	$____
4._____	$____	$____	$____	$_____	$____
5._____	$____	$____	$____	$_____	$____

1992 SUMMARY

1992 will begin the development of Benson Municipal Airport. The City will acquire approximately 205 acres of land for runway construction and protection zone purposes. The City will also establish an access road to the airport from Ocotillo Road. The completion of the 1992 development will permit airfield development the following year.

STAGE I
1993 Airport Development Costs

RECOMMENDED DEVELOPMENT		ESTIMATED COST
6.	Site Preparation	$2,050,000
7.	Drainage Improvements	200,000
8.	Security Fencing	15,800
9.	Install Utilities	500,000
	Total	**$2,765,800**

Inflation Adjustment: _____% x $2,765,800 = $_____

Plus or Minus Other Proposed Development:

1. _____ $_____
2. _____ $_____
3. _____ $_____
4. _____ $_____
5. _____ $_____

Total Cost of 1993 Proposed Development: $_____

Since the FAA Fiscal Year is from October through September, efforts should begin immediately to identify the development that will be eligible for federal or other funding during this period. The airport should have applications submitted early for the maximum funding possible in case additional funds become available. For the same reason, the application should include all the development proposed through the planning year. Although it is unlikely it will all be funded in one year, the FAA will be in a position to immediately identify the areas where additional funds can be spent. The following listing illustrates optimum funding for the recommended development during this period.

STAGE I (Continued)
1993 Development Funding

DEVELOPMENT ITEM		FAA	STATE	CITY	PRIVATE	TOTAL
6.	Site Preparation	$1,866,730	$91,635	$91,635	$0	$2,050,000
7.	Drainage Improvements	182,120	8,940	8,940	0	200,000
8.	Security Fencing	14,387	706	706	0	15,800
9.	Install Utilities	455,300	22,350	22,350	0	500,000
	Total	**$2,518,537**	**$123,631**	**$123,631**	**$0**	**$2,765,800**

Adjustments:

1._____	$____	$_____	$_____	$_____	$_____
2._____	$____	$_____	$_____	$_____	$_____
3._____	$____	$_____	$_____	$_____	$_____
4._____	$____	$_____	$_____	$_____	$_____
5._____	$____	$_____	$_____	$_____	$_____

1993 SUMMARY

The 1993 development program is preperatory to runway and aircraft parking apron construction in the following year. The airport site will be cleared and graded for runway construction.

Necessary drainage improvements will be constructed and utlities will be installed. The airport perimeter will be fenced to provide security and controlled access.

STAGE I
1994 Airport Development Costs

RECOMMENDED DEVELOPMENT	ESTIMATED COST
10. Construct Runway 10-28	$500,000
11. Construct Aircraft Parking Apron	60,000
12. Construct Segmented Circle	5,000
13. Construct Auto Parking	15,000
Total	**$580,000**

Inflation Adjustment: _____% x $580,000 = $_____

Plus or Minus Other Proposed Development:

1. _____ $_____
2. _____ $_____
3. _____ $_____
4. _____ $_____
5. _____ $_____

Total Cost of 1994 Proposed Development: $_____

Since the FAA Fiscal Year is from October through September, efforts should begin immediately to identify the development that will be eligible for federal or other funding during this period. The airport should have applications submitted early for the maximum funding possible in case additional funds become available. For the same reason, the application should include all the development proposed through the planning year. Although it is unlikely it will all be funded in one year, the FAA will be in a position to immediately identify the areas where additional funds can be spent. The following listing illustrates optimum funding for the recommended development during this period.

STAGE I (Continued)
1994 Development Funding

DEVELOPMENT ITEM		FAA	STATE	CITY	PRIVATE	TOTAL
10.	Construct Runway 10-28	$455,300	$22,350	$22,350	$0	$500,000
11.	Construct Aircraft Parking Apron	54,636	2,682	2,682	0	60,000
12.	Construct Segmened Circle	4,552	224	224	0	5,000
13.	Construct Auto Parking	0	13,500	1,500	0	15,000
	Total	**$514,488**	**$38,756**	**$26,756**	**$0**	**$580,000**

Adjustments:

1._____	$____	$_____	$_____	$_____	$_____
2._____	$____	$_____	$_____	$_____	$_____
3._____	$____	$_____	$_____	$_____	$_____
4._____	$____	$_____	$_____	$_____	$_____
5._____	$____	$_____	$_____	$_____	$_____

1994 SUMMARY

Completion of the 1994 development program will provide a safe general aviation airport that can be used during daylight hours. Adequate aircraft parking apron and auto parking will also be provided.

STAGE I
Airport Development Costs

RECOMMENDED DEVELOPMENT	ESTIMATED COST
14. Install Lighted Wind Indicator	$5,000
15. Install MIRL Runway 10-28	120,000
16. Install Rotating Beacon	10,000
Total	**$135,000**

Inflation Adjustment: _____% x $135,000 = $_____

Plus or Minus Other Proposed Development:

1. _____ $_____
2. _____ $_____
3. _____ $_____
4. _____ $_____
5. _____ $_____

Total Cost of Stage I Proposed Development: $_____

Since the FAA Fiscal Year is from October through September, efforts should begin immediately to identify the development that will be eligible for federal or other funding during this period. The airport should have applications submitted early for the maximum funding possible in case additional funds become available. For the same reason, the application should include all the development proposed through the planning year. Although it is unlikely it will all be funded in one year, the FAA will be in a position to immediately identify the areas where additional funds can be spent. The following listing illustrates optimum funding for the recommended development during this period.

STAGE I (Continued)
1995 Development Funding

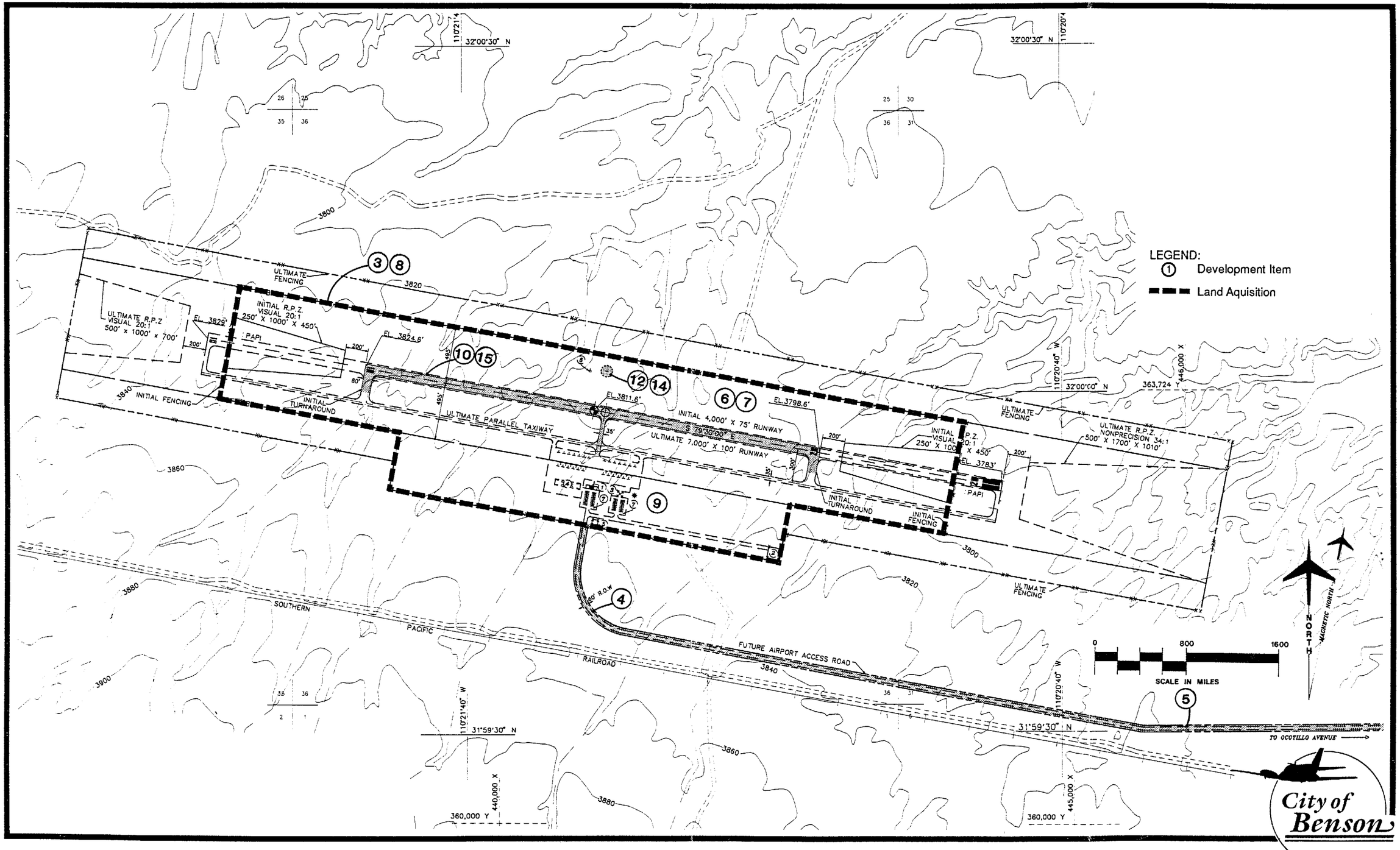
DEVELOPMENT ITEM	FAA	STATE	CITY	PRIVATE	TOTAL
14. Install Lighted Wind Indicator	$4,552	$224	$224	$0	$5,000
15. Install MIRL Ruwnay 10-28	109,272	5,364	5,364	0	120,000
16. Install Rotating Beacon	9,106	447	447	0	10,000
Total	**$122,930**	**$6,035**	**$6,035**	**$0**	**$135,000**

Adjustments:

1._____	$____	$____	$____	$_____	$____
2._____	$____	$____	$____	$_____	$____
3._____	$____	$____	$____	$_____	$____
4._____	$____	$____	$____	$_____	$____
5._____	$____	$____	$____	$_____	$____

1995 SUMMARY

The 1995 development will complete Stage I and make Benson Municipal Airport a safe and usable VFR general avition airport. The lighting improvement installed this year will enable the airport to remain open 24 hours a day. This foundation will enable the airport to expand as necessary to meet future aviation demands.



City of Benson

Exhibit 8A
STAGE I AIRSIDE DEVELOPMENT

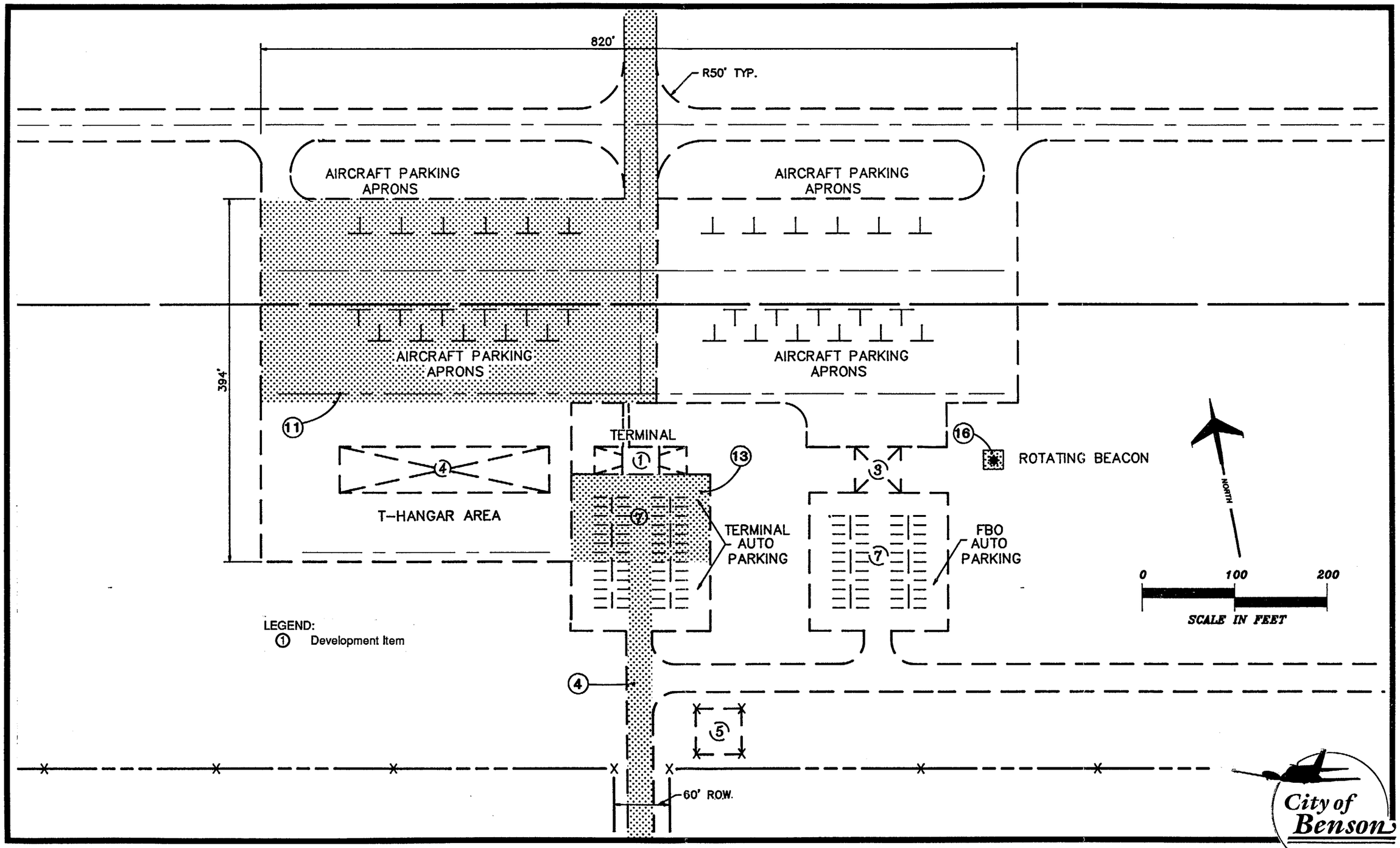


Exhibit 8B
STAGE I LANDSIDE DEVELOPMENT

STAGE II
Airport Development Costs

RECOMMENDED DEVELOPMENT		ESTIMATED COST
1.	Land Acquisition	$51,800
2.	Site Preparation	370,000
3.	Extend Security Fencing	32,000
4.	Extend Runway 10-28	200,000
5.	Extend MIRL	48,000
6.	Install PAPI-2 Runway 28	10,000
7.	Construct Parallel Taxiway	396,700
8.	Install Taxiway Delineators	1,400
9.	Install NDB	20,000
10.	Install AWOS	60,000
11.	Pave Access Road (Local)	400,000
12.	Pave Access Road (FAA)	160,000
13.	Construct Fuel Storage	100,000
14.	Construct Terminal Building	165,000
15.	Construct 10-Unit T-Hangar	150,000
16.	Construct FBO Building/Hangar	500,000
	Total	**$2,664,900**

Inflation Adjustment: _____% x $2,664,900 = $_____

Plus or Minus Other Proposed Development:

1. _____ $_____
2. _____ $_____
3. _____ $_____
4. _____ $_____
5. _____ $_____

Total Cost of Stage II Proposed Development: $_____

Since the FAA Fiscal Year is from October through September, efforts should begin immediately to identify the development that will be eligible for federal or other funding during this period. The airport should have applications submitted early for the maximum funding possible in case additional funds become available. For the same reason, the application should include all the development proposed through the planning year. Although it is unlikely it will all be funded in one year, the FAA will be in a position to immediately identify the areas where additional funds can be spent. The following listing illustrates optimum funding for the recommended development during this period.

STAGE II (Continued)
Development Funding

DEVELOPMENT ITEM	FAA	STATE	CITY	PRIVATE	TOTAL
1. Land Acquisition	$47,169	$2,315	$2,315	$0	$51,800
2. Site Preparation	336,922	16,539	16,539	0	370,000
3. Extend Security Fencing	29,140	1,430	1,430	0	32,000
4. Extend Runway 10-28	182,120	8,940	8,940	0	200,000
5. Extend MIRL	43,708	2,146	2,146	0	48,000
6. Install PAPI-2 Runway 28	9,106	447	447	0	10,000
7. Construct Parallel Taxiway	361,236	17,732	17,732	0	396,700
8. Install Taxiway Delineators	1,276	62	62	0	1,400
9. Install NDB	18,212	894	894	0	20,000
10. Install AWOS	54,636	2,682	2,682	0	60,000
11. Pave Access Road (Local)	0	0	400,000	0	400,000
12. Pave Access Road (FAA)	145,696	7,152	7,152	0	160,000
13. Construct Fuel Storage	0	0	0	100,000	100,000
14. Construct Terminal Building	0	0	165,000	0	165,000
15. Construct 10-Unit T-Hangar	0	0	0	150,000	150,000
16. Construct FBO Building/Hangar	0	0	0	500,000	500,000
Total	**$1,229,222**	**$60,339**	**$625,339**	**$750,000**	**$2,664,900**

Adjustments:

1._____	$____	$____	$____	$____	$____
2._____	$____	$____	$____	$____	$____
3._____	$____	$____	$____	$____	$____
4._____	$____	$____	$____	$____	$____
5._____	$____	$____	$____	$____	$____

STAGE II SUMMARY

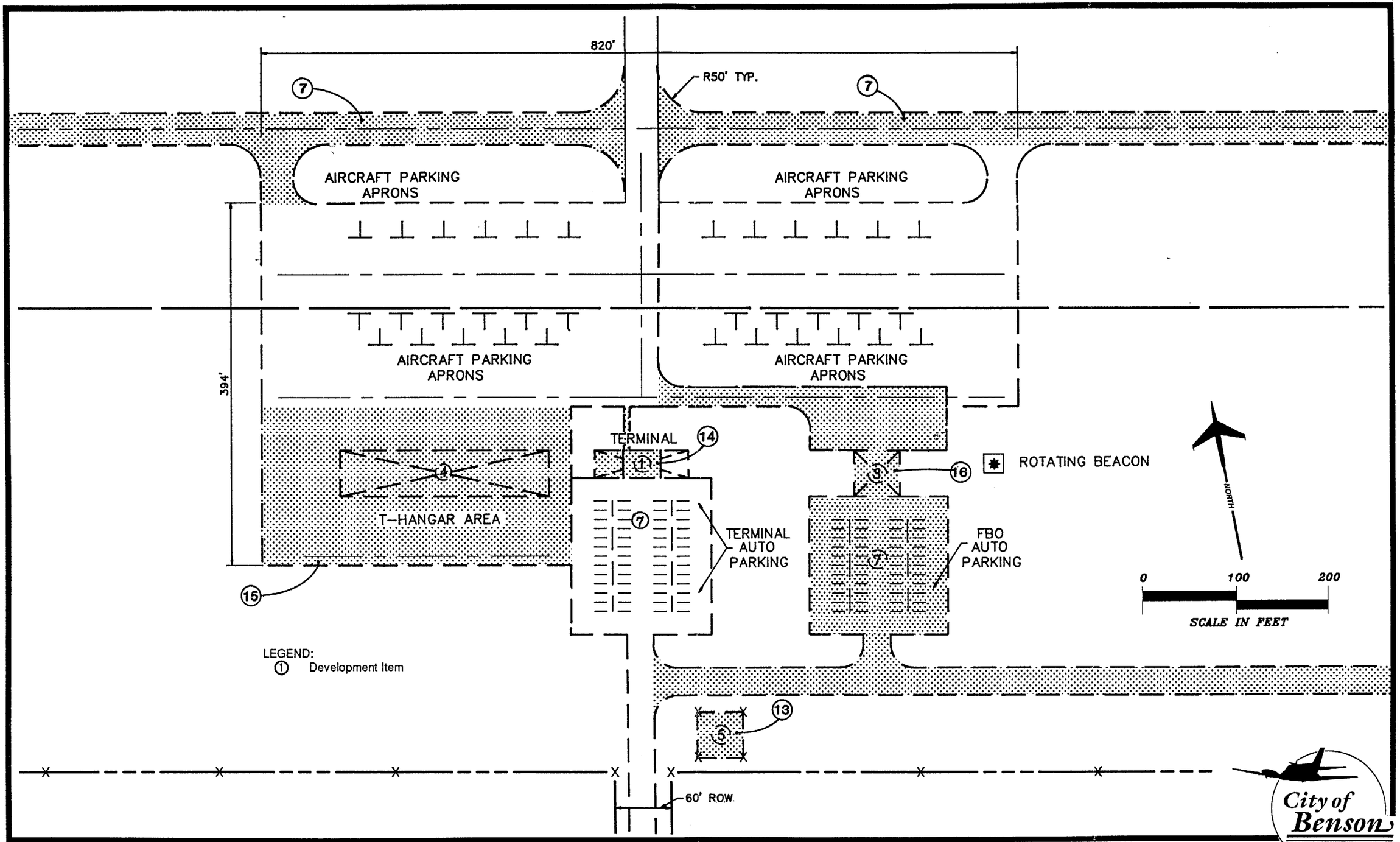
The development proposed in Stage II will increase the capabilities of Benson Municipal Airport to accommodate a larger portion of the general aviation fleet. The runway will be extended to 5,600 feet and the airport will be upgraded to all weather capacity. Fuel storage facilities and commercial activity will become available.

LEGEND:
① Development Item
Land Aquisition

ULTIMATE FENCING
BRL
INITIAL R.P.Z. VISUAL 20:1 250' X 1000' X 450'
ULTIMATE R.P.Z VISUAL 20:1 500' X 1000' X 700'
EL. 3829'
PAPI
EL. 3824.6'
EL. 3811.6'
EL. 3798.6'
INITIAL 4,000' X 75' RUNWAY
S 79°30'00" E
ULTIMATE 7,000' X 100' RUNWAY
ULTIMATE PARALLEL TAXIWAY
INITIAL TURNAROUND
INITIAL FENCING
ULTIMATE R.P.Z. NONPRECISION 34:1 500' X 1700' X 1010'
3783'
SOUTHERN PACIFIC RAILROAD
60' R.O.W
FUTURE AIRPORT ACCESS ROAD
TO OCOTILLO AVENUE
32°00'30" N
32°00'00" N
31°59'30" N
110°21'40" W
110°20'40" W
363,724 Y
445,000 X
440,000 X
360,000 Y
3800
3820
3840
3860
3880
3900
0 800 1600
SCALE IN MILES
NORTH
MAGNETIC NORTH

City of Benson

Exhibit 8C
STAGE II AIRSIDE DEVELOPMENT



City of Benson

Exhibit 8D
STAGE II LANDSIDE DEVELOPMENT

STAGE III
Airport Development Costs

RECOMMENDED DEVELOPMENT	ESTIMATED COST
1. Environmental Assessment	$35,000
2. Land Acquisition	203,000
3. Site Preparation	1,450,000
4. Extend Security Fencing	28,000
5. Extend Runway 10-28	175,000
6. Extend Parallel Taxiway	100,000
7. Widen Runway 10-28	290,000
8. Strengthen Runway 10-28	777,800
9. Extend MIRL	42,000
10. Install MITL on Parallel Taxiway	255,000
11. Install PAPI-2 Runway 10	10,000
12. Strengthen Parallel Taxiway	330,500
13. Strengthen Aircraft Parking Apron	150,000
14. Expand Terminal Building	135,000
15. Expand Auto Parking	27,000
16. Expand Aircraft Parking Apron	84,000
17. Install REILS Runway 10	15,000
18. Install REILS Runway 28	15,000
19. Non-Precision Runway Markings	10,000
Total	**$4,132,300**

Inflation Adjustment: _____% x $4,132,300 = $_____

Plus or Minus Other Proposed Development:

1. _____ $_____
2. _____ $_____
3. _____ $_____
4. _____ $_____
5. _____ $_____

Total Cost of Stage III Proposed Development: $_____

Since the FAA Fiscal Year is from October through September, efforts should begin immediately to identify the development that will be eligible for federal or other funding during this period. The airport should have applications submitted early for the maximum funding possible in case additional funds become available. For the same reason, the application should include all the development proposed through the planning year. Although it is unlikely it will all be funded in one year, the FAA will be in a position to immediately identify the areas where additional funds can be spent. The following listing illustrates optimum funding for the recommended development during this period.

STAGE III (Continued)
Development Funding

DEVELOPMENT ITEM		FAA	STATE	CITY	PRIVATE	TOTAL
1.	Environmental Assessment	$31,870	$1,565	$1,565	$0	35,000
2.	Land Acquisition	184,852	9,074	9,074	0	203,000
3.	Site Preparation	1,320,370	64,815	64,815	0	1,450,000
4.	Extend Security Fencing	25,496	1,252	1,252	0	28,000
5.	Extend Runway 10-28	159,354	7,823	7,823	0	175,000
6.	Extend Parallel Taxiway	91,060	4,470	4,470	0	100,000
7.	Widen Runway 10-28	264,074	12,963	12,963	0	290,000
8.	Strengthen Runway 10-28	708,264	34,768	34,768	0	777,800
9.	Extend MIRL	38,245	1,877	1,877	0	42,000
10.	Install MITL on Parallel Taxiway	232,202	11,399	11,399	0	255,000
11.	Install PAPI-2 Runway 10	9,106	447	447	0	10,000
12.	Strengthen Parallel Taxiway	300,952	14,773	14,773	0	330,500
13.	Strengthen Aircraft Pkg. Apron	136,590	6,705	6,705	0	150,000
14.	Expand Terminal Building	0	0	135,000	0	135,000
15.	Expand Auto Parking	24,586	1,207	1,207	0	27,000
16.	Expand Aircraft Parking Apron	76,490	3,755	3,755	0	84,000
17.	Install REILS Runway 10	13,660	670	670	0	15,000
18.	Install REILS Runway 28	13,660	670	670	0	15,000
19.	Non-Precision Runway Markings	9,106	447	447	0	10,000
	Total	**$3,639,938**	**$178,680**	**$313,680**	**$0**	**$4,132,300**

Adjustments:

1._____	$____	$_____	$_____	$_____	$_____
2._____	$____	$_____	$_____	$_____	$_____
3._____	$____	$_____	$_____	$_____	$_____
4._____	$____	$_____	$_____	$_____	$_____
5._____	$____	$_____	$_____	$_____	$_____

STAGE III SUMMARY

The proposed development in Stage III will upgrade Benson Municipal Airport to accommodate large general aviation aircraft including business jet aircraft. The runway will be extended to 7,000 feet in length and strengthened to accommodate aircraft weighing up to 60,000 pounds. Airport lighting and approach aids will be improved and terminal area facilities will be expanded.

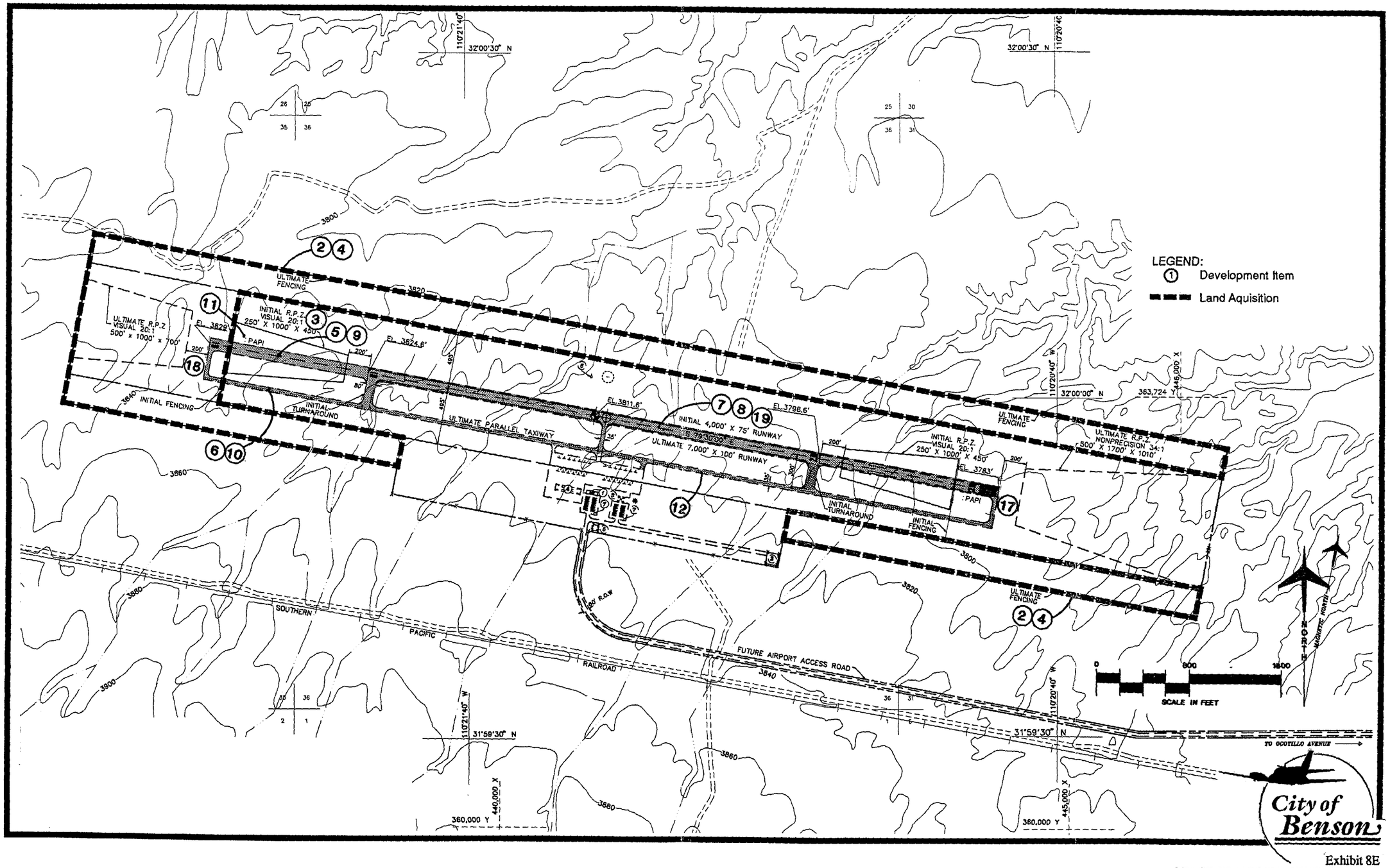


Exhibit 8E
STAGE III AIRSIDE DEVELOPMENT

820'

R50' TYP.

AIRCRAFT PARKING APRONS

AIRCRAFT PARKING APRONS

AIRCRAFT PARKING APRONS

AIRCRAFT PARKING APRONS

13 16

394'

TERMINAL

1

14

4

T-HANGAR AREA

7

TERMINAL AUTO PARKING

3

7

FBO AUTO PARKING

ROTATING BEACON

NORTH

0 100 200

SCALE IN FEET

LEGEND:
① Development Item

15

5

60' ROW.

City of Benson

Exhibit 8F
STAGE III LANDSIDE DEVELOPMENT